

Response To Comments on the Federal Draft Underground Injection Control Permit to Puna Geothermal Venture. March 2006

According to Title 40 of the Code of Federal Regulations (CFR), Part 124.17(a), the U.S. Environmental Protection Agency (EPA) shall briefly describe and respond to all significant comments on the draft permit and the permit application during the public comment period, or during any hearing. The response shall also specify which provisions, if any, of the draft permit have been changed in the final permit decision and the reasons for the change.

What follows is EPA's response to comments received on the Puna Geothermal Venture (PGV) draft permit during the December 16, 2005 to January 17, 2006 public comment period. As a result of the submitted comments, EPA is making a few minor wording changes in the permit terms and conditions. These changes are described in our responses below. No request was made for a public hearing. In the permit, the term "well" refers to an injection well unless otherwise stated.

Specific Comments

1. Comment. Part II.B.3 of the draft permit. Depth of tubing correction from 3,700 feet to 3,200 feet.

Response. This comment refers to the draft permit description "For existing wells, injection tubing extends to below 3,700 feet (KB)." When the original permit was issued, the tubing (i.e., the hangdown liner in the well schematics) for injection wells KS-1A, KS-3 and KS-4 all extended to below 3,700 feet. Subsequently, KS-11 was added to the permit and the tubing for KS-11 extends to 3,203 feet.

The sentence "For existing wells, injection tubing extends to below 3,700 feet (KB)" will be deleted from the final permit because there is also language in the draft permit that states "Injection tubing (hangdown liner) will be utilized within the longstring casing and will extend to the depths indicated on the well schematics." This condition accounts for the possibility that new injection wells may have tubing lengths that differ from the existing ones.

2. Comment. Part II.C.2 of the draft permit. Corrective Action. The permittee is requesting that it be allowed to drill within 600 feet (less than 1/8 of a mile) of SOH-1 without having to demonstrate the mechanical integrity of SOH-1.

Response. Currently the drilling of a new injection well or conversion to an injection well is prohibited within one-quarter (1/4) mile of Scientific Observation Hole #1 (SOH-1) until the internal and external mechanical integrity of SOH-1 has been demonstrated to the EPA by some party.

Using state funds, SOH-1 was drilled by the Hawaii Natural Energy Institute in the early 1990's in an effort to map the extent of geothermal resources. EPA is concerned that SOH-1 could provide a conduit for injected fluids to reach the Underground Source of Drinking Water

(USDW) because the State has not properly plugged and abandoned it. Therefore, the permit will retain the current one-quarter mile radius around SOH-1, which is consistent with the one-quarter mile area of review (AOR) that extends from the well pads and 40 C.F.R. §146.6(b) which precludes the use of a fixed-radius AOR of less than one-quarter mile.

3. Comment. Part II.E.2.c of the draft permit. Mechanical Integrity Testing. The permittee is requesting that in the permit condition “Annual mechanical integrity tests for all wells shall be conducted at the same time to enable EPA to witness them”, that EPA replace “at the same time” with “sequentially, as practicable.”

Response. EPA’s intent is not to require the permittee to conduct the MITs simultaneously, but rather that the MITs on all injection wells be conducted within the same testing period. In the past, MITs might be conducted on one well in June and on the other wells in October/November. This creates additional trips for an EPA inspector who wants to witness the MITs on all the wells. The final permit will state that “Annual mechanical integrity tests for all wells shall be conducted sequentially, within the same testing period to enable EPA to witness them.”

4. Comment. Part II.E.9.a of the draft permit. Reporting. The permittee is requesting that the semiannual groundwater monitoring data be submitted in March rather than February, and in September rather than August. This would allow up to 60 days for reporting.

Response. The sixty-day reporting period is consistent with the new sixty-day reporting period for the MIT results. EPA will change this condition to “Semiannual ground water monitoring report and data as required by the Hydrologic Monitoring Program, to be submitted by March 31 and September 30”.

General Comments

5. Comment. One commenter is concerned that reinjected brine and steam, and any toxic chemicals added to the steam, could migrate through lava tubes and steam vents to the surface. This in turn could affect drinking water catchment systems, roofs and health.

Response. While fractures can facilitate the migration of brine and steam, we do not believe this is a concern at the PGV site because of geologic barriers that impede brine and gases from the injection zone from reaching the USDW and surface. At PGV, the injection zone is between 3,897 and 7,950 feet. Between the top of the injection zone and the base of the USDW, which is at approximately 2,000 feet, there is approximately 1,900 feet of relatively impermeable rock, as indicated by temperature and lithologic logs, that acts as a barrier.

6. Comment. The County Police Department commented that they receive weekly updates on the status of current projects and are included in plans that may affect public safety. They are also aware that PGV has specific procedures to address any problems that may arise during operation. At this time, they do not have any public safety concerns.

Response. No response needed.